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Bear/People Conflicts in Gatlinburg, Tennessee: An Analysis of the Social, Political, and Ecological Elements

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I am submitting herewith a thesis written by Kate Mitchell Newton entitled "Bear/People Conflicts in Gatlinburg, Tennessee: An Analysis of the Social, Political, and Ecological Elements." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Retail, Hospitality, and Tourism Management.

John Peine, Major Professor

We have read this thesis and recommend its acceptance:

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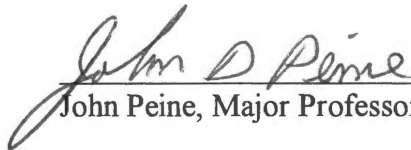
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To the Graduate Council:

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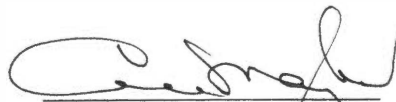

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and recommend its acceptance:





Accepted for the Council:


Interim Vice Provost and
Dean of the Graduate School

Bear/People Conflicts in Gatlinburg, Tennessee: An Analysis of the Social, Political, and Ecological Elements

A Thesis

Presented for the Master of Science in Planning Degree

The University of Tennessee, Knoxville

Kate Mitchell Newton

December 2000

ABSTRACT

Nuisance black bears cause property damage, threaten public safety, and heighten wildlife use conflicts among people across the United States. Wildlife managers have solutions to control nuisance black bear behavior and the accompanying conflicts that occur. The solutions are to require bear-proof garbage disposal, to prohibit intentional feeding, and to educate the public about black bear behavior. However, these solutions are either slow to be adopted or are ignored by local legislative bodies.

In 1999, Gatlinburg, Tennessee, adopted a local ordinance mandating bear-proof garbage containers. This thesis will explain why the city of Gatlinburg adopted the ordinance by documenting the influence of the cultural, political, economic, and ecological dynamics contributing to this decision concerning wildlife policy. The symptoms of these dynamic human interactions are revealed through the bear/people conflicts and related people/people conflicts that occurred at an increasing rate in the area.

This thesis will assert that Gatlinburg adopted the ordinance due to negative publicity and public pressures that threatened the success of the tourism industry. The model used to test this hypothesis is Stephen Kellert's (1994) wildlife policy model. The model categorizes the types of human interactions that influence constituency relations over time into four forces: biophysical; valuational; socio-structural forces; and the institutional regulatory. Each force interacts and influences one another. The information sources used to test this hypothesis are newspaper articles, memos, letters, interviews, pamphlets, ordinances, and brochures.

The model provides a framework to analyze these dynamic human interactions and their effect on the constituency decision-making process. The findings show that two mast crop failures at the height of the natural black bear population rise sent a larger than previously experienced number of black bears into Gatlinburg in search of food and to establish new home ranges. To offset this out movement of the black bear population, the Tennessee Wildlife Resources Agency (TWRA) implemented an October hunting season. During the same time frame, Gatlinburg developed at urban densities adjacent to the largest black bear reserve in the southeast. Gatlinburg focused policy decisions around tourism without identifying with a responsibility to public safety or to stewardship of the park wildlife resources such as the black bear. Resulting property damage from nuisance black bear behavior and property rights conflicts over hunting in the city limits changed the balance of perspective towards the black bear. Citizen began to take action to find solutions to the problem. The conflicting values of the visitors and the residents perpetuate different levels of and approaches to wildlife use. Current state laws inhibit the exercise of local control over hunting and feeding black bears. Groups representing the federal, state, county, and city governments disconnected when trying to solve the conflict. Confusion over who has control and jurisdiction over hunting, wildlife, and garbage in the city perpetuated the apathy towards positive decision making.

Tourism has slowed Gatlinburg's adoption of a local ordinance that controls garbage disposal. The black bear attracts people to the area. The city did not adopt a local garbage ordinance until public pressure against hunting of bears threatened the health of the tourism industry. The city, unable to override state control, adopted a local ordinance

mandating the use of bear-proof garbage containers that has been suggested as a solution by experts for years. Due to the fatal black bear mauling of a woman in the GSMNP, proposed legislation is going before the state to stop the intentional feeding of the black bears. Tennessee Wildlife Resources Agency (TWRA) supports this proposal and intends to proclaimate the intentional feeding of bears in certain areas.

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CHAPTER I

INTRODUCTION

In the face of resource pressures mainly from habitat loss due to land development, resource managers are confronting the difficult task of managing habitat that support a viable and productive American black bear (*Ursus americanus*) population. Studies of the biology of bears and the changes in human land use give perspectives on current problems associated with managing and conserving bears for the future (Schoen, 1990). To effectively protect against the demise of the black bear population, erosion of the black bear habitat, and increase of human/bear conflict, resource managers must think in a broader context and address the issues of humans and their land-use activities. Therefore, resource managers recognize the need for a comprehensive management approach involving an understanding of the cultural, economic, political, and ecological aspects that influence human land use (Decker, 1989). These aspects of land use are constantly interacting and need to be considered when trying to effectively manage bear habitats adjacent to human development. By investigating the human components of land use and bear management, perceptions of landowners and other land use decision-makers can be identified in order to overcome situations that hold back solutions to bear/human conflicts (1989).

Statement of the Problem

The American black bear is an intelligent, individualistic, large-bodied mammal with a great learning capacity. Their reproductive rates are nutritionally

regulated and some of the lowest among mammals. A bear's opportunistic nature, food requirements, and wide scope of movements, along with an increase in shared land base with humans, causes human/bear conflicts (Schoen, 1990). Due to habitat loss from human development, bear populations are scattered and isolated in the midwest, eastern, and southeastern United States where lands have been intensively developed and high-density human populations exist (1990). Human settlement within and adjacent to black bear habitat creates opportunities for bears to exploit the high nutritional value of human crops, foods, and garbage. The nutritional value of human foods is reflected in an increase in body mass and offspring for the bear (1990). Eventually, bears begin to associate these foods with humans and begin to lose their fear of humans. In effect, the bears become food-conditioned. Unfortunately, most food-conditioned bears become nuisances to human beings, because of the property damage and aggressive behavior that result from this loss of fear (Gilbert, 1989).

Restricting the availability of human food, primarily garbage, is recognized as an essential element in efforts to resolve human/bear conflicts (McCarthy, 1994). Most national parks and national forests mandate the use of bear-proof garbage containers and have in place garbage disposal regulations. However, most local governments do not have specific ordinances that require bear-proof garbage disposal. Therefore, there can be conflict between the parks/forests and the surrounding local communities due to the laws. One solution to this conflict is to enact state ordinances that prohibit the feeding of black bears and to enact bear-proof garbage container ordinances at the local government level in order to deter the habituation of wild bears to humans. Mistakenly, most human/bear

conflicts focus around the garbage containment issue as the source of the conflict, rather than considering the aspects that contribute to land-use decisions, such as the laws or the economic pressures that affect the mandating of bear-proof garbage containers. In communities where bear problems are associated with residential garbage, restricting the availability of human food is a complex issue (1994). Politics influence the containment policy decisions in urban areas, and public misconceptions regarding bear problems and their resolutions just enhance the inability to mandate effective containment policies.

Developing the public awareness necessary for responsible fact-based decision-making is critical. Therefore, the education of citizens', tourists', workers', etc. is vital in gaining voluntary improvements due to the lack of regulations that restrict human food availability (1994). However, achievement of this public awareness can be difficult and expensive. The cost of improving garbage containment to the point of bear proofing can be substantial and prohibitive when applied at individual residences. This cost makes it necessary to introduce publicly financed community systems that reduce the fiscal burden on individuals. Proposals to establish such systems generate a level of public debate commensurate with their costs. Perceptions of the value placed on garbage containment determine public willingness to make the financial- and convenience-related sacrifices necessary to minimize bear/human conflicts (1994). Nevertheless, the use of strict containment measures is strategic in reducing the number of newly food-conditioned bears. This safeguard against allowing bears to become food-conditioned is extremely important because bears are learning at each contact with humans or human foods. This

learned behavior is taught to offspring, which perpetuates the problem in generations of bears.

The Great Smoky Mountains National Park (GSMNP) is one of the largest bear reserves in the east. In the past ten years, the GSMNP has experienced an increase in black bear populations (Delozier, 1998). Within the same time frame, human development is occurring right up to the park boundary. Gatlinburg, Tennessee, is the largest community bordering the GSMNP boundary. Incidences of food-conditioned bears coming into the residential communities of Gatlinburg are common. In fact, many business owners, residents, and tourists of Gatlinburg encourage this food conditioning through the deliberate feeding of human food to the bears and through current garbage disposal practices.

Oak mast is the primary natural food source in the fall season for black bears in the park. The incidence of bears seeking human garbage outside of park boundaries is even higher in years of an oak mast failure commonly referred to as a mast crop failure. The problem was particularly acute in 1997 when there was a high population of black bears, particularly two year olds, and a failed fall mast crop. Bears ranged beyond the park boundaries seeking food and in the case of young males, new territories.

The black bear is a nuisance in Gatlinburg because the city has not been able to pass effective wildlife policies due to conflicts with local and state laws, conflicts between hunters and non-hunters, and conflicts between tourists and residents who live permanently in the community. The city's only solution has been to pass a bear-proof garbage ordinance, which may help the problem, somewhat, but it does not address many

of the issues that created the nuisance bear problem in the first place. There is not only a bear/human conflict in Gatlinburg, but also a people/people conflict brought about by cultural, political, economic, and ecological factors attributed to land use. This human dimension of the situation needs more attention to effectively address the causes of human/bear conflicts and the resulting people/people conflicts.

CHAPTER II

METHODOLOGY

In Stephen Kellert's article "Public Attitudes Toward Bears and Their Conservation," he describes how science, values, and politics interact to produce public policies regarding conservation and management of bears. A framework of an action plan simplifies the complex process of creating wildlife policies (1994). The intent is to influence the conservation and management of bears. Kellert states that "the lack of corresponding knowledge of public values, political forces, and socioeconomic factors will typically result in ineffective policies intended to assure the long-term well being of this animal (1994)." The wildlife policy model illustrates the process of formulating policy and the dynamic interactions of the policy forces (1994). The forces that affect the development and implementation of bear policy are the biophysical, valuational, social structural, and institutional-regulatory. Wildlife policy is a complex consequence of science, values, and politics.

This paper utilizes Kellert's wildlife policy framework model to analyze the wildlife issues surrounding black bears and people in Gatlinburg (1994). The premise is that the political policies of constituencies' effect bear management expressed at both the community and organizational level.

Research Questions

The analysis defines and describes the political, economic, and social conflicts that result as a manifestation of human land use adjacent to wildlife reserves. Stephen

Kellert's wildlife policy model is used to answer the question, "What forces influenced Gatlinburg's policy formulation and what triggered a change in their relative influence? (1994)"

Scope of the Study

The study scope is an analysis of human-bear conflicts in Gatlinburg. The issue of problem bears and communities is limited to the analysis of the situation in Gatlinburg. The focus looked at the waste management issue. Other factors such as hunting were studied in the context of the waste management issue.

Methods

As displayed in Figure 1, Kellert's wildlife policy model provides a framework for identifying key forces that influence the decision making process at various stages such as initiation, estimation, selection, implementation, evaluation, and termination (1994). The biophysical forces include population distribution, abundance, reproductive ecology, habitat use/dependence, prey/predator relations, behavioral ecology, ecosystem structure, etc. The valuational forces include basic wildlife values, knowledge of wildlife, perceptions of an individual species, and human/animal relationship. The institutional-regulatory forces include legal, legislative, pressure groups, bureaucratic relations, organizational structures, litigation, constituency relations, and etc. The social-structural forces include formal authority, informal authority, power structure, social stratification, property relations, land use relations, resource use/control, etc. Chapters IV, V, VI, and

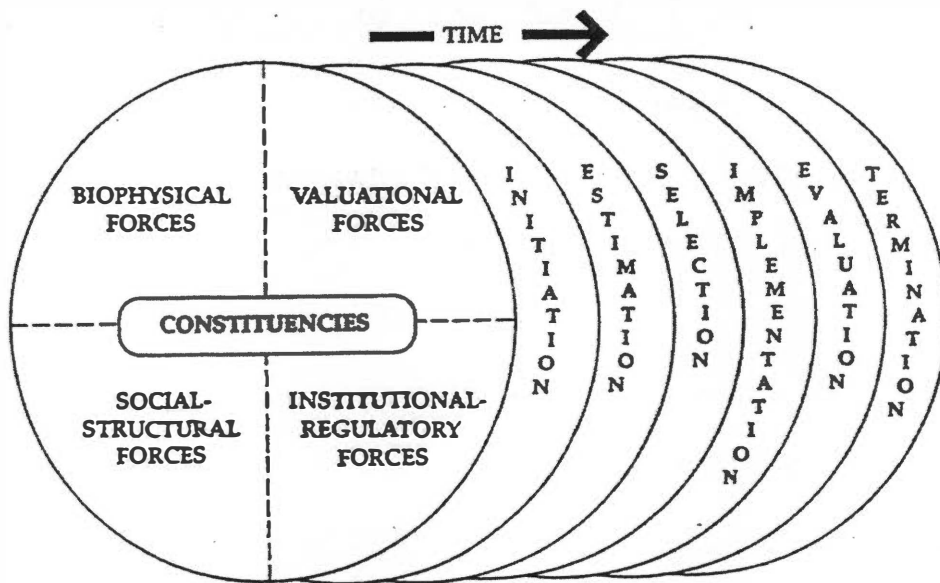


Figure 1. Stephen Kellert's Wildlife Policy Model

VII define the forces in the context of the city while the chapter Chronology of Interactions shows the interactions of the forces on a time line.

This model aids in the analysis of policy decisions during the Gatlinburg conflict surrounding black bears. Information used to describe the forces interacting in Gatlinburg was extracted from existing literature, newspaper articles, memorandums, letters, phone logs, and interviews.

Applicability

As the pace of human development increases throughout the United States, resource managers and city managers are faced with the increasingly difficult land and resource management situation of wildlife/human conflicts due to a shared land base.

Many studies have been conducted on how to manage wildlife in these situations, but the problems still persist due to a lack of emphasis placed on the dimensions of human land use as a source of human/bear conflicts. This thesis, due to the nature of its analysis, provides a perspective of the human side of the wildlife management situation through a comprehensive planning method for analysis. Further, this thesis addresses the complexities of wildlife management adjacent to human development and offers a formula of problem solving and analysis. The approach evaluates the whole system to uncover a set of problems and approaches manifested in symptoms such as the human/bear conflicts and people/people conflicts in Gatlinburg.

CHAPTER III

LITERATURE REVIEW

In order to gain a better understanding of the black bear situation in Gatlinburg and the Great Smoky Mountain National Park, it is important to examine the extensive body of literature regarding the resource management of black bears. This body of works helps bring clarification to the following items:

- What are black bears, and what are the differences between wild bears, food-conditioned/panhandling bears, and habituated bears? What damage do these bears cause?
- What are possible contributors to the human/bear conflicts?
- What are the possible solutions to the problem, and what are the drawbacks to these solutions?
- What are the success stories related to human/bear conflicts occurring within the United States, and what learning can be transferred to the Gatlinburg and the Great Smoky Mountain National Park?

The Black Bear

Black bears are opportunistic omnivores that feed on what is available (Delozier and Stiver, 1997). Wild bears are afraid of people. However, access to human foods and garbage can take the “wild” out of wildlife. Consequently, feeding bears and allowing them access to human food and garbage changes their wild behavior and causes them to lose their instinctive fear of humans, which in turn causes them to become a nuisance due to their unpredictability (McClean, 1990; Mattson 1990; McCrutchin, 1990). Once bears lose their instinctive fear of people, this learning is irreversible and transmitted to their young (Delozier and Stiver, 1997; McClean, 1990; Mattson, 1990). Nuisance bears injure people and cause property damage (structural as well as to livestock). In support of this vicarious learning, Barrie Gilbert’s analysis indicates the learning from mother to

offspring influences the variation in bears' response to people (Gilbert, 1989). Cubs learn from their mother's behavior how to react to the human presence. If this behavior is modified early, a bear will show avoidance of human odors and return to wild foods (McCrutchen, 1990). Improvements in the bear's food base and better refuge for bears are fundamental solutions in deterring the development of nuisance behavior in bears.

Typically, the initial stage of black bear food conditioning begins when a wild bear enters a developed area at night. Wild bears are night active. If the wild black bear is rewarded with human food or garbage, they become progressively bolder until they begin to enter developed areas during the day when human activity is the greatest (McClean, 1990). At this point, the bears are no longer wild and are in fact habituated, and therefore, day active. Habituated bears that are attracted to human foods such as garbage cause future problems during seasonal food stress. Bears that are seen near people are the ones that will approach people in developed areas (McClean, 1990.) Generally, these bears are food-conditioned, meaning they have a direct association between humans and food. This influences habitual food-seeking behavior. The distinction between food conditioning and habituation is that habituation to people refers to the tolerance of proximity to people, while food-conditioned bears feed on people's groceries and damage property in search of human food sources (Delozier and Stiver, 1997; McClean, 1990; Mattson, 1990). A bear is often both. An emphasis needs to be placed on habitat improvements in order to lessen the food-conditioned behavior of bears. The theory is that if there is no natural bear food available to support the population then the bear will seek other food sources for survival. Feeding bears human food or allowing them to obtain garbage indirectly

kills them, because bears conditioned to the human presence seen in panhandling behavior lose their fear of humans, and become easy targets for poachers and hunters (Delozier and Stiver, 1997; McClean, 1990). This creates a dangerous situation for both bears and humans.

Contributors to Human/Bear Conflict Problems

The list of contributors to human/bear conflict is extensive. Bears are large animals capable of inflicting injury or death to humans (Schoen, 1990). They are smart mammals and learn quickly. Black bears are able to exploit many food sources across a wide range of habitats (Schoen, 1990). Due to development and tourism, the land base of humans overlaps that of black bears. In their article, "Some Demographic Comparisons of Wild and Panhandler bears in The Great Smoky Mountains National Park," Peter Mclean and Mike Pelton remark that bears in North America have lost ninety percent of their original range. The population is scattered and isolated in areas across the United States (Garner, 1989; McClean, 1990; Schoen, 1990). In the Great Smoky Mountains National Park, the Cherokee National Forest, the Nantahala National Forest, the Cattahechee National Forest, and the Pisgah National Forest, bears are in frequent and direct contact with humans (McLean, 1990). Visitor density in direct proximity with bear density contributes to the panhandler activity of these bear due to violations of food regulation and habitat condition (Garner, 1989). Black bears that eat human foods grow faster and mature earlier (Schoen, 1990). However, there is still a lower survival rate among panhandler bears due to proximity to roadsides, the advent of legal hunting, and

poaching. Resource managers expect increased panhandler activity based on habitat changes due to hard mast unreliability (McLean, 1990). Due to a low human tolerance of bears, habitat management needs to go beyond the place where the animal lives (Schoen, 1990).

Nathan P. Garner and Michael R. Vaughn report that in Virginia's Shenandoah National Park, protection from hunting, the maturation of hardwood forests and intensive farming near the park boundary have contributed to one of the densest black bear populations in North America. Many parks with similar bear and human density situations have become islands surrounded by human development. Due to this, property damage and the illegal and legal harvest of black bears have become a serious problem (Garner, 1989).

Possible Solutions to Controlling Human/Bear Conflict

The list of possible solutions to bear/human conflict is substantial. The following section details a few of the solutions from the following list:

- Bear-proof garbage containers and camping food containers
- Increasing education and awareness among humans
- Legislative measures/mandates
- Extended hunting seasons
- Destruction of problem bears
- Relocation of problem bears
- Cultivation of natural black bear food substances
- Improvement of black bear habitat
- Elimination of bird feeders, etc. in bear country
- Modification of behavior in young bears

Many researchers and resource managers found that communities that make adjustments by bear-proofing their garbage significantly reduce the food conditioning of

bears, which in turn lowers the level of nuisance bear activity. Most human/bear conflicts occur from black bears that are food-conditioned. These conflicts occur in the form of property damage, injury to people, or destruction of farm animals.

Access to human food and/or garbage is a primary factor involved in creating conflicts that negatively affect both people and bears. Many of the bears inhabiting East Tennessee are fed intentionally for personal and /or business related financial gain and/or recreational activities. Recreational activities range from visitors attempting to attract bears for photo opportunities to hunters establishing bait sites to enhance harvest opportunities. The state of Tennessee needs a public safety bill to prohibit the intentional feeding of bears, as it is recognized that black bears are a valuable resource for the state of Tennessee.

John Peine et al. in “Bears and Community Waste Management: A Policy Analysis (1999)” inventories how other communities plagued by problems stemming from garbage eating bears effectively address the issues at a community level. This article comprehensively reviews regulatory statutes, regulatory authorities, and education activities across the United States associated with this issue. For instance, several local governments have adopted ordinances that prohibit the feeding of black bears and require proper storage and disposal of garbage in bear-proof garbage containers. Among the local governments included are the town of Snowmass, Colorado; West Yellowstone, Montana; Anchorage, Alaska; and Juneau, Alaska. Also, the states of North Carolina and Oregon prohibit the feeding of black bears.

Success Stories and Learning by Location

Juneau, Alaska

Thomas McCarthy and Roger Seavoy in their article “Reducing Nonsport Losses Attributable To Food Conditioning: Human and Bear Behavior Modification” report that bear activity associated with food conditioning has led to the death of many bears in Juneau, Alaska (1994). To combat this problem, garbage handling was targeted. Restricting the availability of human foods, especially garbage, was recognized as a solution to the ongoing problem of nuisance bears and human/bear conflicts. This goal was reached through public education that eventually led to sanitation ordinances requiring the use of bear-proof garbage containers. Public awareness and attitudes were raised and changed through fact-based decision making. Due to this change in awareness, the community opted to make some financial and convenience-related sacrifices to minimize human/bear conflicts. These sacrifices are reflected in the 1991 Juneau City Assembly adopting an ordinance requiring all residential and commercial garbage to be stored in bear-proof garbage containers. Apparently, this legislation is the product of the educational program that heightened awareness about bears in the community (1994).

Yosemite National Park

Since the 1920s, black bears have been fed in Yosemite National Park intentionally and unintentionally. This food conditioning over the years has created an extreme situation of habituated bears that cause much property damage and serious injury to humans in this area. Jeffrey Keay and Michael Webb write in the “Effectiveness of Human/Bear Management at Protecting Visitors in Yosemite National Park” that solely

passing along information is an insufficient way to control and to stop this continuing problem (1989). Messages need to be motivating to accomplish change in visitor behavior in the park. One way to deter food-conditioned behavior of black bears is to implement a policy that supports the widespread use of portable bear-proof food containers for backpackers (1989).

Colorado and Montana

E magazine in its May/June 1995 issue published an article called “Bad News Bears.” The article focused on problem bears and how to solve their nuisance behavior associated with food conditioning. The Colorado Division of Wildlife decided in 1994 that the second offense of a problem bear would lead to its destruction. As the Great Bear Foundation of Montana explains, the relocation of problem bears does not stop the nuisance behavior of these bears in an area. Bears have a home range and core center of activity and will go to great lengths to return to a familiar area. Destruction of bears is not an ideal solution, but some bears are chronically attracted to garbage. Many bears have dined in suburban backyards of western states and even in downtown Boulder, Colorado.

The ideal solution is not to remove or destroy bears, but to remove the garbage temptations. Residential garbage is a great attraction to bears, and officials have asked tourists and campers not to leave bear bait. The Great Bear Foundation advocates that wildlife officials need the power of enforcement. There needs to be leverage for conservation officials to control sanitation problems. Snowmass Village in Colorado is the first town to require bear-proof containers and prohibits residents from leaving out pet

food and bird feeders where bears can access them. State wildlife officials are considering statewide legislation establishing uniformity in sanitation procedures.

Denali National Park

In the article “Bear People Conflict Management In Denali National Park, Alaska”, Joseph Van Horn and John Dalle-Molle describe a bear/human conflict action plan (1989). They suggest that causes, not just symptoms, of the problem must be treated. The priorities should be to eliminate unnatural food rewards for bears and to encourage better management of human use. Education, food and waste management, and management actions in response to interactions are some of the elements suggested as part of the action plan. This bear management program is a high priority in Denali (1989).

Education is cited as an important aspect of reducing the incidents of bear/human conflicts with an increase in training of concession employees as a focal point. Efforts to educate people that live on private land surrounding the park are also a focus of the plan. This plan includes monitoring garbage handling, offering assistance in designing bear-proof facilities, and encouraging better state regulations and enforcement (1989).

In 1983, the park hired two biological technicians to manage human/bear conflict. Their duties included responding to human/bear conflicts; patrolling areas such as the park hotel, housing, campgrounds, and developed areas outside the park boundary for litter problems; and training employees of the park and local businesses about safe practices in bear country. They used bear-resistant containers in the backcountry to deter

bears from obtaining unnatural food sources before they become food conditioned (1989).

Another focus is to deter bears from developed areas, so that they do not become food conditioned. These efforts have brought about a decrease in conditioned bear behavior. The point of this is to avoid killing or relocation of bears. It is not hard to kill or relocate bears, but it is important to the park's efforts to avoid this unnecessary slaughter. New regulations mandate the proper food storage on private land and stronger enforcement of existing garbage disposal regulations (1989).

Wisconsin

In "A Review of Problem Black Bear Management in Wisconsin", Scott Hyngstrom and Thomas Hague discuss actions that reduce bear-people conflicts. Most complaints about nuisance bears in Wisconsin involve garbage, bird feeders, and the presence of bears around human dwellings (1989). In 1986, fifty-eight percent of Wisconsin's complaints about black bears involved nuisance bears. Proper sanitation and disposal of bear attractants resolved seventy-five percent of these complaints.

Another black bear management technique is hunting. Management zones have been established in Wisconsin to provide control of hunter distribution and black bear harvest. In Wisconsin shooting permits are given to landowners, this is a tool to reduce black bear populations where damage and nuisance problems are severe. The Wisconsin Department of Natural Resources handles bear complaints, research, harvest registration, and habitat improvement efforts to better manage black bear populations. This organization feels research is an integral part of the bear management program. Bears that

cause excessive property damage, safety concerns, or are a persistent nuisance are translocated. In 1986, black bear damage was widespread and severe due to a significant shortage of natural foods and a slight increase in the bear population (1989).

The future of black bear management programs in Wisconsin needs a public information program to increase public awareness of black bears and convey how to minimize potential conflicts. Also, hunter education programs to promote ethical behavior of hunters are necessary for the black bear management program to be completely successful. Black bear hunting is important to retain as a management tool (1989).

Bear hunting does face adversity with the anti-hunting movement due to the status of the bear and problems with the behavior of hunters. The black bear management program needs to address problems associated with fair chase and the ethical harvest of bears. It is important to specifically address trespassing, vehicle-assisted hunts, and the use of dogs and baiting. It is very important that research continues to aid in the development of guidelines on the destruction and relocation of bears as well as landowner assistance programs (1989).

Minnesota

David Garshelis also raises questions about the effectiveness of black bear transplant programs in “Nuisance Bear Activity and Management in Minnesota (1980).” He indicates transplanting nuisance bears fails to address the situation that led to the nuisance bear activity. He feels education programs are important in combating this

human/bear conflict with emphasis placed on containment of human related food sources (1989).

Rocky Mountains National Park

Henry McCrutchin indicates that parks in the United States and Canada have problems with black bears because these parks protect black bears, which leads to their habituation to humans, human activity, and human development (McCrutchin, 1990). In the article “Cryptic Behavior of Black Bears (*Ursus americanus*) in the Rocky Mountain National Park,” it is pointed out that a bear’s dependence on human foods results in human injury and property damage (1990). The Rocky Mountains National Park receives more visitors than Yellowstone National Park per year, even though it is one eighth the size. In the Rocky Mountain National Park, black bears are present but are not considered a nuisance. The researcher found that parks with a history of the artificial feeding of bears such as Yellowstone, Sequoia, Kings Canyon, Yosemite, and the Great Smoky Mountains National Park have persistent problems with habituated bears. This problem continues to occur even when intensive bear management has been in place for over fifteen years (1990).

In Rocky Mountains National Park, bears have never been allowed to feed on human foods. From the time the park was established in 1915, bears that fed on human foods were removed from the park or killed. Cliff Martinka indicates that the policy in Glacier National Park is to remove or destroy bears that are habituated to human foods (Martinka, 1994). The hypothesis is that learning is passed on to new generations, and

that learning and heredity have influenced the bears in Rocky Mountain National Park due to heavy hunting (1994).

Pisgah National Forest

Jerry J. Beringer, Steven G. Seibert, and Michael R. Pelton studied roads and black bear reactions to roads in the report “Incidence of Road Crossing by Black Bears in the Pisgah National Forest, North Carolina (1994).” They found that roads act as barriers to black bears. Also, when bears cross roads, they become vulnerable to hunting. Roads are often the cause of illegal hunting in bear sanctuaries. Many times the dogs are released in the bear sanctuary. The dogs then run the black bear out of the protected area onto the road where they are then killed. Wayne Kasworm and Timothy L. Manley found that road closure systems are important for bear habitat management (Kasworm, 1990).

Allan Brody in “Habitat Use by Black Bears in Relation to Forest Management in Pisgah National Forest, North Carolina” found that Interstate 40 and the Pigeon River gorge form a strong, but not complete, barrier to bear movements (1986). Roads detract from the quality of bear habitat because they provide easy human access to bears. Interstate 40 may provide an ironic form of protection for bears, as hunters are reluctant to release their dogs when a pursued bear heads toward I-40. Hunting is the major human-related factor affecting bear populations in this area. Brody believes this is an indication that there needs to be better control of hunting pressure in this area (1986).

The Catskills

Daniel Decker and John O’Pezio in the article “Consideration of Bear-People Conflicts in Black Bear Management for the Catskill Region of New York: Application

of a Comprehensive Management Model,” state that management environment is made up of cultural, economic, political, and ecological components (1989). They hold that in order to effectively manage a resource, one must consider all components to proceed in an adaptive manner. Wildlife biologists are responsible for the management of bear populations in areas shared by bears and people. In these areas, bear/people conflicts are common and therefore become a consideration of resource managers (1989).

The added dimension of people’s perceptions of bears has become significant in the process of managing bears. This article holds that the wildlife management cycle must adapt management actions to public opinion because bear management has become dynamic and should be goal-oriented with a focus on the cultural, economic, political, and ecological components. The wildlife management process needs to be addressed through a comprehensive process that includes goals, objectives, problem identification, evaluation, and then a contribution to the information base. This article bases its management approach on research from Krueger et al. describing the management environment as a composite of cultural, political, economic, and ecological components within which resource agencies must function (1989).

The cultural component contributes to values society adopts towards resources. Values override the principal motivation for resource management. The economic component consists of the processes of the marketplace that influence decisions about resource management. The political component is the laws of government and values of individuals who enact laws and lobby for legislation. The ecological component is the ecosystem people are attempting to manage (1989).

Many resource managers and researchers believe the human dimensions, rather than the ecology of the system being managed, drive wildlife management. This paper discusses an experience of applying a comprehensive management approach espoused by Krueger et al. that integrates the biological and human dimensions of management.

Great Smoky Mountains National Park

The report “Black Bear Management Guidelines” focuses on the issues and problem-solving techniques of managing black bears in the Great Smoky Mountains National Park (GSMNP, 1993). The report makes the point that when visitors come to the park they are sharing the same habitat as bears and other wildlife. These short-term visits result in long-term effects. Black bears strive to survive in a habitat impacted by humans. The purpose of this report is to try to minimize some of the effects visitors to the park have on black bears. An education program is important to make visitors, concessionaires, employees, and full time residents aware of the dangers to bears and visitors due to irresponsible visitor actions and behavior (1993).

A concentrated effort needs to be made on conveying bear issues and conservation messages to park neighbors. This includes the need for the reporting of illegal hunting activity. Sanitation and garbage disposal efforts in the park consist of all garbage cans and dumpsters being bear-proofed with a collection program on a strict schedule. Information on proper garbage disposal will be provided to park residents, live-in permittees, lessees, and concession operators. Citations are given to people who feed black bears and improperly dispose of garbage in the park. Roadside bears are not a natural part of the scenery (1993).

In 1991, the Great Smoky Mountains National Park published a report called “Black Bear Management In the Chimneys Picnic Area” in response to high levels of nuisance bear activity in this area (GSMNP, 1991). The effort consisted of two components. They are to keep human food and garbage away from wild bears and to capture, work up, and release black bears that frequented the area during the evening. This effort required the unnatural removal of food, and just before dark visitors were asked to leave the area. The report states that “ local visitors and certain business owners became disturbed because opportunities to view bears was being significantly reduced, and that park activity was not only bad for business in Gatlinburg but was affecting the whole economy of Sevier County, Tennessee (1991).” The effort was a success in eliminating nuisance bear activity in this area.

CHAPTER IV

BIOPHYSICAL FORCES

Stephen Kellert's article "Public Attitudes Towards Bears and Their Conservation" describes the biophysical forces at work on wildlife policy as being composed of several factors (1994). These factors are population distribution/abundance, reproductive ecology, habitat use/dependence, prey/predator relations, behavioral ecology, and ecosystem structure. These factors will be used to describe the past and present population of the American black bear in the GSMNP and the black bear population in the Southern Appalachians, which includes the GSMNP black bear population. Behavior, hunting, and the ecosystem structure will be described to highlight management concerns and issues involved in the black bear population.

Population Distribution/Abundance

Since 1973, the black bear population has increased in the Southern Appalachian region. This population increase has been confirmed through harvest data and annual bait station data collected over the years by different groups (TWRA, 1994). Separate black bear studies are routinely conducted focusing on the following geographic areas: the GSMNP; Tennessee; the Southern Appalachian study region that includes Georgia, North Carolina, South Carolina, and Tennessee; and the Tri-State bear study region that includes Tennessee, North Carolina, and Georgia. Tennessee shares its black bear

population with North Carolina and Georgia where bears are residing on publicly owned lands. These public lands include four national forests and the GSMNP (GSMNP, 1993).

The Tennessee Wildlife Resources Agency (TWRA) manages the black bear population in the national forests and on state owned public lands. The National Park Service (NPS) manages the black bear population within the GSMNP. In 1990, the Tri-State study estimated a population of 2,000 black bears with 450-580 being in Tennessee (Scott, 1990). Both the GSMNP and TWRA data confirmed this 1990 population increase. TWRA reported that the black bear population in 1990 was stable yet increasing. Due to this data, the organizations five-year goals included the maintenance of the current population levels while minimizing habitat loss (Scott, 1990).

The GSMNP continues to provide refuge for a significant portion of the black bear population in the entire Southern Appalachian region. The 1997 bait station survey for this area suggests a significant increase in the bear population from 1996, indicating an increase in black bear density (GSMNP, 1997). The black bear population being at or near carrying capacity can be attributed to no hunting within the park (Delozier, 1999). However, there is some bear mortality in the park related to collisions with cars.

A University of Tennessee (UT) black bear population study in the GSMNP reported the black bear population to be at 1,000 animals in 1997 (Pelton, 1999). This was the highest visitation rate to bait-stations ever recorded in the thirty-year history of black bear monitoring activity in the area.

Dr. Mike Pelton, a world renowned black bear expert and wildlife biologist working on the longest ongoing study of black bear population anywhere in the world,

stated that population estimates are higher than were previously believed. The data indicates a black bear population of 1,000 – 3,400 black bears in the GSMNP, which is the highest number in recorded history (Pelton, 1997). Pelton estimates that in the four-state region which includes the mountains of Tennessee, South Carolina, Georgia, and North Carolina, there are between 5,000-6,000 black bears. The Southern Appalachian Bear Group supports these findings with an estimate of about 6,750 black bears in the four-state region. These figures represent an estimated seventy percent increase in the black bear population over a sixteen-year period (SABG, 1997).

Another source of black bear population documentation for 1997 was from the October hunting season. Between October 13 –19 in Blount, Sevier, and Cocke counties yielded a harvest of 235 black bears (Scott, 1998). There were 93 males and 140 females harvested. The reason for this high number of bear kills is due to the very high population and a shortage of natural food, primarily acorns, in the GSMNP. The October hunting season proves to be effective in protecting adult females. This fact is supported by the recorded adult mortality figures that are skewed toward males except in 1997 (SABG, 1997). However, the high female mortality rates of 1997 are attributed to “breeding synchrony” that occurred after the 1992 mast crop failure. Breeding synchrony is when the majority of the female population goes into heat around the same time due to environmental pressures. After this event, an enormous number of cubs were born in 1993 followed by three years of excellent mast season from 1994-1996 (Pelton, 1997). A large number of cubs with a great natural food supply contributed to a large survival rate of the cohort of cubs. Since 1992, the bear harvests and bait station surveys have

indicated the state of Tennessee's black bear population has continued to grow. The bear population is resilient despite local perceptions of a decimated population due to October harvesting (Turner, Bear Kills., 1997).

The total mortality rates of black bear indicate an increase of the black bear population since 1981 (SABG, 1997). This data is consistent with the underlying trend of an increase in the black bear population across the Southern Appalachian region. A large number of bears have been seen in towns and other residential areas. This is due to an increase in bear densities, which can be attributed to the system of sanctuaries and regulations that aid in the expansion of the population over the past sixteen years (SABG, 1997). This system has proven effective in protecting adult females as evidenced by the recorded adult mortality rates that are skewed toward males since 1981 except in 1997 (SABG, 1997). Also, prohibiting hunting on the seventeen percent of occupied black bear range has contributed to an increase in black bear populations in the Southern Appalachian region (SABG, 1997). The high black bear mortality of 1997 was not detrimental to the population, and the next challenge is to develop better strategies for dealing with nuisance animals.

Habitat Use/Dependence

Bears habitat encompasses a variety of climates and vegetation types. They are highly adaptable animals that share the same habitat as human beings. Prior to European settlement, the black bear range in North America consisted primarily of one contiguous forest. Due to human development and pockets of forested areas, their habitat structure

has become isolated pockets. They eat hard mast and soft mast mainly from the acorns of the chestnut. The black bear population in Tennessee is limited to mainly mountainous areas of the Southern Appalachians (Pelton, 1990). Permanent bear populations occur only on federally owned lands (Scott, 1999). There are two areas in Tennessee that provide an adequate habitat for black bears. They are the GSMNP with 241,000 acres and the Cherokee National Forest with 635,000 acres (TWRA, 1994). The park is the largest and most important population center for black bears in the region (TWRA, 1994). A male black bear has a larger home range than a female. The male home range averages about 22.6 square miles and the female home range averages about 4.3 square miles (TWRA, 1994). Males and females both have larger home ranges in the fall than in the spring and summer (TWRA, 1994). The most important habitat requirements are food availability and den sites. The most important food is hard mast in the fall (TWRA, 1994). The production of hard mast, abundance and location, influences the movements of the black bear. This food is necessary for the black bear to meet their nutritional requirements (TWRA, 1994).

Predator/Prey Relations

Hunting seasons were established in Tennessee in the early 1930s. In the years from 1970-1972 the black bear hunting season closed due to the low population levels of black bear (Scott, 1990). In 1973, a reserve or sanctuary system was established (Scott, 1990). These areas prohibit the hunting of bears within them and are set up mainly to protect the female black bear population. In 1979, the December hunting season was

reestablished and this continued as the only hunting season into 1990. The hunting season lasts for 14 days in December and permits only one bear per person to be harvested. Cubs or females with cubs are not to be harvested. The harvest data is monitored through mandatory checking system consisting of field crews and checking stations (Scott, 1990). Thirty-five percent of the black bear population is removed each year due to legal and illegal hunting each year in Tennessee (TWRA, 1994). The increase in the bear population and the low natural food supply, especially in the year of 1992, created a situation where the non-harvest mortalities of black bear due to automobile collisions exceeded mortalities from a legal harvest (TWRA, 1994). The problem stems from the deterioration of habitat quality and quantity.

Behavioral Ecology

Bears are highly intelligent large mammals that have wide ranging movements across their habitat (Pelton, 1990). They learn quickly and are highly adaptive. Black bears are solitary, with their social interactions limited to the mating season or females and their cubs (Pelton, 1990). Their wide-range movements require large expanses of habitat to meet their needs. Wild bears are nocturnal animals foraging for food in the evening hours. Males travel alone and at an early age develop a home range that becomes their territory for life. Female ranges are smaller, and they raise their cubs for several years. The female bear hibernates earlier in the winter than the male. A black bear's behavior is affected by the production of hard mast, time of year, time of day, weather, age of the bear, and reproductive status (TWRA, 1994). Overall, black bears seem to be

the most active in August and the least active in November and December (TWRA, 1994). The pressures on the black bear population are due to increasing demands for timber and recreation on national forest lands surrounding the park; development on adjacent private land; illegal hunting and legal hunting outside the park; and the potential impacts of the gypsy moth (*Porthetria dispar*) infestation on oak mast production (GSMNP, 1997).

The bears in the park are exhibiting a progressive behavioral change with respect to nuisance activity stemming from food conditioning to human foods (Delozier, 1997). Due to this behavioral change and an increase in day-active bears, fifteen backcountry campsites were closed (Delozier, 1997). Data from a hard mast survey indicate a poor mast production that resulted in an October out movement of black bears from the park (GSMNP, 1997). This movement of black bears outside of the park exposed them to human foods and created a rise in the incidence of nuisance bear activity within and outside of the park.

Ecosystem Structure

The GSMNP encompasses 521,000 acres of over 6 million acres of federally owned lands in the region. It is an International Biosphere Reserve as well as a globally significant refuge for the temperate forest biome (Peine et al, 1999). The park is located in the Southern Appalachian Highlands bordering the states of North Carolina and Tennessee (1999). This area represents the largest refuge for black bears in the eastern United States.

Due to growing incidences of nuisance black bear complaints since 1989 in counties bordering the GSMNP, it was suggested in 1990 to initiate a coordinated meeting for all the state and federal agencies involved in black bear management in the region (Scott, 1990). The deterioration of habitat quality and quantity has created a rise in nuisance bear behavior. A task force of federal, state, and county governments has formed to deal with the nuisance bear issues in the resort areas adjacent to the GSMNP (Scott, 1990). The University of Tennessee and TWRA both participated in the Black Bear Task Force with a regional focus on black bear management (Pelton, 1990). The group meets semi-annually, and the protection of females from hunting mortality is the most important aspect of their overall bear management program (TWRA, 1994). Due to this regional approach to black bear management, 387,000 acres of black bear sanctuary have been established in Tennessee (TWRA, 1994). It is important to keep in mind that people share the same habitat with black bears, and the short-term users have long-term effects on black bears (GSMNP, 1993).

Summary

TWRA, the GSMNP, UT, and SABBSG all report the black bear population in the region of the Southern Appalachians, including Tennessee, has increased steadily since 1973, and especially since 1990. Due to this dramatic increase, TWRA implemented an October hunting season in 1990 to offset the movement of black bears out of bear reserves into public lands in search of food. This migration is due to a low mast crop production in the bear reserves sending the black bears outside the park in

search of food. Harvest data indicates there is a healthy female population as well as a resilient overall black bear population. The current focus needs to be upon habitat quality and the management and elimination of nuisance black bear behavior.

CHAPTER V

SOCIAL-STRUCTURAL FORCES

This chapter focuses on the social-structural forces that influence policies toward black bears in Gatlinburg. Kellert's (1994) model demonstrates that the following forces influence wildlife policy: land-use relations, resource use/control, formal authority, informal authority, power structure, social stratification, and property relations (Kellert, 1994). An analysis of the factors that make up the social-structural force is important to gain an understanding of how the city's policies, actions, and land uses influence the behavior of the human population, the black bear population, and ultimately city government. This analysis will reveal the motivation behind the bear-proof garbage ordinance passed in Gatlinburg.

Gatlinburg is located on U.S. 441, the major road bisecting the GSMNP crossing over the mountains from Tennessee into Cherokee, NC. The national park forms the southeastern boundary of the city. Before the GSMNP was created, Gatlinburg was a small hamlet. After the creation of the park, the year-round population remained small, but the area became a major resort community and a world-famous gateway to the national park (Tenn., 1991). Tourism has been the major employer since the beginning of the park's existence (1991), and the city has prospered due to its location at the main entrance of the park (Harland, 1971). Today, Gatlinburg remains a major tourist destination as a gateway community to the most visited national park in the United States with approximately nine million visitors annually (Tenn., 1991; Tenn., 1999).

Land Use

A 1991 land-use analysis reveals that Gatlinburg's development resembles that of a larger city due to its need to accommodate a combined resident and tourist population of over 50,000 people (Tenn., 1991). The population of Gatlinburg as of 1999 is 4,323 people, and in 2020 the population is projected to be 7,898 people (Tenn., 1999). There are 6,557 incorporated acres in Gatlinburg. Of this acreage, 4,274 are developed and 2,349 are vacant (1999). The residentially developed land equals 2,576.4 acres at 39.6 percent of the total developed land area of Gatlinburg (1999). A high number of tourist rentals make up this figure. The overall residential density is 1.79 units per acre (1999). The majority of the residential acreage is single-family at different development density levels. There are approximately 2,1771 single-family residential units.

There are currently 689.7 acres of land devoted to commercial use within the city. These acres represent 10.49 percent of the total land area and 16.34 percent of all developed land. There are 900 businesses located within the corporate limits. Business development equates to an average density of 1.31 businesses per acre (1999). The most concentrated area of commercial development is in downtown Gatlinburg along the West Prong of the Little Pigeon River.

Much of the community lies in steep topography with residential development occupying most of the developed land base. The data supports the fact that Gatlinburg is developed at urban densities to accommodate a large transient residential population, i.e. tourists. The main areas where black bear problems occur are the Ski Mountain and

Chalet Village residential areas, and the downtown commercial district. These areas are hot spots due to their proximity to the park boundary and accessible garbage supply.

Figure 2 is a land use map of Gatlinburg that shows the types of development and their locations. The map gives a visual display of the development densities. It is obvious from the map that commercial and residential developments are concentrated on the GSMNP side of the city. The GSMNP is adjacent to the southern incorporated limits. The red area is designated as commercial and also includes some hotels in the city.

Resource Use/Control

In an effort to keep up with pressure resulting from a large tourist population, the Gatlinburg area has developed at a rapid pace since the 1970s (Tenn., 1999; Tenn., 1991). It is projected that Gatlinburg will host more than 58,000 visitors on peak visitation days by the year 2000 (1999). Most citizens of Gatlinburg are employed in the sectors of retail, services, manufacturing, and construction that support the tourism industry (Gatlinburg, 1992).

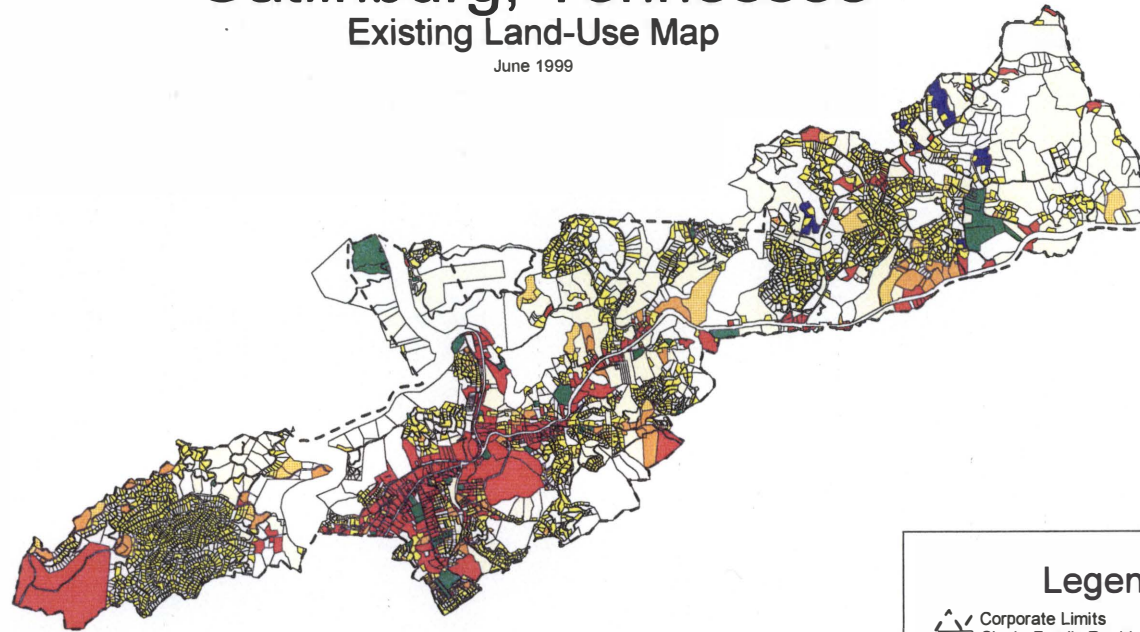
Visitors are attracted to the natural resources of the area, such as the mountain setting and visible wildlife of Gatlinburg. The black bear is a major tourist attraction and is occasionally visible within the city limits. Ironically, this high daylight black bear visibility is mainly due to the tourist population that has created more garbage for the city. As in any cycle, the garbage attracts black bears that lure more tourists who again create even more garbage. The presence of bears in town draws hunters to the area during the black bear hunting season. This has resulted in a conflict between users with different



Gatlinburg, Tennessee

Existing Land-Use Map

June 1999



Graphic Illustration Prepared By:
State of Tennessee
Dept. of Economic & Community Development
Land Planning Assistance Office
East Tennessee Region
Knoxville, Tennessee
June 1999
Land-Use Data Source: Sevier County Property Assessor's Office

Legend

- Corporate Limits
- Single-Family Residential > 2 Acres
- Single-Family Residential < 2 Acres
- Single-Family Planned Unit Development
- Multi-Family Residential
- Mobile Home Park
- Commercial
- Public/Semi-Public
- Vacant Parcels

Figure 2. Land Use Map of Gatlinburg, Tennessee

goals, specifically hunters and tourists. There are now ordinances in place that control garbage disposal, but there are no ordinances in place to influence human's behavior around the black bear. For instance, until August of the year 2000, it was not illegal to purposefully feed a bear outside of the GSMNP (Associated Press, 2000).

The Formal Authority

The city of Gatlinburg is governed under a Commission-Manager form of government as set forth in the Tennessee Code Annotated, 6-19-101, with the city manager as the chief executive officer of the city. The major responsibilities of the manager include implementation of all ordinances, resolutions, regulations, and policies adopted by the board of commissioners along with the preparation of the annual operating budget. The manager directs the operations of all offices and departments, which include finance, purchasing, personnel, planning, code enforcement, public information, and vehicle servicing (Gatlinburg, 1992). The manager also monitors the activities of various boards, commissions, committees, and authorities established by the board of commissioners to assure compliance with the city's policies (1992).

The City Commission is the sole legislative authority in the city of Gatlinburg that reviews and adopts city policies and ordinances. This body of elected officials represents the citizen voice and administers the goals of the community. As a step towards community enhancement and economic development, the city directed a Citizen Steering Committee in 1992 to create a long-range plan for Gatlinburg (1992). The purpose of this initiative was to design strategies to solve local problems and issues to enhance the area

for locals and visitors. The plan is designed to promote prosperity through economic development and other policies in Gatlinburg's future.

The Informal Authority

The informal authority consists of the permanent residents and tourists of Gatlinburg. Since the main industry in Gatlinburg is tourism, the number of permanent residents is small, approximately 3,417 people in 1992, which cater to an influx of 58,000 visitors on peak tourist days (Gatlinburg, 1992). The majority of the permanent population in Gatlinburg is over the age of sixty-five, categorizing the area as a retirement center (Tenn, 1991). Sevier County is one of the fastest growing counties in the state of Tennessee, with a wealthier than average population (1991).

The visitor counts in Gatlinburg for the year 2000 are projected to total 6.6 million people (Tenn., 1999). The majority of the people visiting Gatlinburg come from the eastern United States from areas in the South Atlantic region, the Eastern South Central region, and the Eastern North Central region. The tourists are typically older more established travelers (Harland, 1971). As expected, tourist visitation to the area is seasonal with July being the peak month of visitation (Tenn, 1991).

As noted earlier, at the direction of the city, a steering committee was created to implement a long-range plan (Gatlinburg, 1992). The steering committee recruited an additional sixty citizen volunteers to help advise on the creation of the report (1992). The community goal report was generated through this citizen involvement. As part of the long-range plan, the committee recommended that the city take steps to preserve the

ambiance and tourist trade of the city (Gatlinburg, 1992). The consensus among the committee members stated that “Gatlinburg should maintain, restore where possible, and market its unique heritage and natural beauty (1992).” The committee created six task forces to focus on the imperative areas and issues. The following challenges faced the task forces and the steering committee: investigating the unique problems encountered by the city, creating coherent strategies to address the problems, creating a vision for the future, and creating community consensus. The task forces focused on areas of aesthetics, economic and community development, leisure services, marketing, parking and transportation, public safety, and public works (1992).

The marketing task force’s vision statement is “to utilize our natural, unique, and acquired amenities to assure that Gatlinburg is the mountain destination of choice for the maximum number of people (1992).” One objective listed to accomplish the preservation and marketability of Gatlinburg’s unique character and ambiance is “by supporting and encouraging positive action on behalf of the Great Smoky Mountains National Park in its efforts to protect, preserve, and promote the park’s original expressed purpose (1992).” One strategy listed to accomplish this objective was to lobby the state and national legislative officials on behalf of the GSMNP on compatible issues (Gatlinburg, 1992). The Public Works Task Force Report addresses garbage issues in Gatlinburg stating that something needs to be done toward eliminating offensive garbage containment in downtown business areas and in residential areas (1992). The task force highlights the improper storage of garbage, but does not mention the issues this containment causes with respect to black bears. They emphasize that it is offensive to tourist in sight and

odor. The task force goes on to recommend that the cost of proper disposal is worth the tourist dollar that it will generate stating that there is ample staff and funds within this department to take care of most garbage disposal needs (1992). Only two of these task forces focused on issues that surrounded the GSMNP and garbage. Ironically, neither one of these task forces directly commented on black bear issues in the area, or how these issues impact and influence tourism.

The citizens of Gatlinburg recognize the positive role the GSMNP plays in the health of the Gatlinburg's tourist economy, and the need for the city to support the park in its management and preservation efforts. Garbage is expressed as an eyesore and possible deterrent to visitors. The importance of promoting a positive image of the city is important to the committee. However, no direct comments on black bears, a major tourist draw, are made. Managing a city with a tourism population in an area surrounded by a black bear reserve has the potential to create conflicts over wildlife.

Social Stratification

The social stratification in Gatlinburg is diverse due to the variety of backgrounds and interests of the citizens. A list of the diverse demographics follows: educated wealthy older retirees, business owners, local mountain people, transient service employees, part-time resident, and visitors/tourists. All of these groups come to the area with their own ideals and influences. The background and education level of the people in this area is also wide-ranging. Therefore, these groups often express differing perceptions on wildlife management and black bears. These differing perceptions and opinions hamper the ability for the community to build consensus concerning the nuisance black bear issues in

the area. Further, these differences in values affect people's property relations in the area and create conflict between users. For a detailed description of these values refer to Chapter IV.

Property Relations

In Sevier County, especially around Gatlinburg, hunting occurs primarily on private property. It is the burden of the landowner to determine if they will allow hunting on their property, due to a state law indicating that a hunter must have written permission to hunt on private property (Garlnad, 2000). Since the resident population is mainly transient with renters forming the majority, landowners have little control over hunting on their property (Tenn., 1991). Also, the properties are generally small tracts of land, the majority of which are an acre or two at most (1991). This circumstance creates a situation where if one landowner gives permission to hunt on his or her property, inevitably the dogs or hunters wind up on other tracts of land (Scott, 2000). This strained relationship between property owners and hunters leaves the landowners with issues of property-rights violations and hunters with persecution over their legal right to hunt (Hodge, 1997). This situation is difficult to control due to the large percentage of rental properties and absentee owners. The renters do not have the authority to control hunting on the property they are leasing on a short-term basis.

Summary

After years of controversy compounded by issues of property relations and social stratification, Gatlinburg took a stand and adopted an ordinance mandating bear-proof disposal of garbage. This ordinance is one step towards ending the vicious cycle of tourist generated garbage creating food-conditioned behavior in black bears that attract hunters that create property conflicts that generates social controversy. There are more factors that contribute to the problem, one of which is people's attitudes and values towards wildlife in the area. This chapter focused on the social structure that has compounded the people/bear issues in Gatlinburg with the main points being:

1. There is urban development next to the largest southeastern black bear reserve.
2. The majority of the residential development is dedicated to tourists.
3. A city bear-proof garbage ordinance was not adopted until 1999.
4. The hunting laws allow hunting within city limits and the residential density promotes conflicts over property rights versus right to hunt.

The city is structured to accommodate a tourist population with a reluctant attitude towards stewardship of resource management. The city's lack of ownership in the black bear issue created a situation where the Chalet Village Homeowners Association began to take ownership of the nuisance black bear issue and adopted a neighborhood bear-proof garbage policy without the help of the city. The city relinquished to pressure five years later.

CHAPTER VI

VALUATIONAL FORCES

Kellert's (1994) model indicates four factors that interact to influence people's attitudes towards wildlife policies. These factors are basic wildlife values, perceptions of a particular species, knowledge and understanding of wildlife, and people/animal interactions. These four factors are the components of the valuational force that over time influenced change in black bear policies in Gatlinburg. Analysis in this chapter reveals divided factions of wildlife values between visitors and residents of the area.

Basic Wildlife Values

Wildlife values discussed in this section represent differing values between homeowners and hunters (Hatcher, No., 1997). Conflict among policy-makers and public outcry about hunting on property in the city illuminates the differences in values among affected parties.

Dominionistic and utilitarian wildlife values are found among rural, large property-owning and resource-dependent groups (Kellert, 1994). Dominionistic values have a primary emphasis on the mastery and control of wildlife, typically in sporting situations, and utilitarian values have a primary emphasis on the practical value of wildlife or the habitat associated with wild animals (1994). People with both these values tend to have little support for moralistic and humanistic wildlife values.

The main opinions of the people with dominionistic and utilitarian wildlife values center on hunting as part of the mountain heritage for the people from the area (Parton, 1995; Wall, 1995; Wilson, M., 1995; Wilson, Jr., 1995). Some people expressed the idea that hunting is important in order to control the black bear population. Several pro-hunting letters to the city and newspaper stated that “hunting is good for the area” (Bowman, 1995; Ownby, 1995; Stewart, 1997). The implied meaning is that hunting controls the black bear population locally, and this is how locals have been doing it for many generations. A letter to the city stated that black bears are “ nice to look at, but they are animals and they destroy property, spread garbage, and have killed animals” (Douglas 1995).

Lucinda Ogle, a long term resident of the area stated that “she is afraid of the tourist bear and not the wild bear” and wants the hunters to kill the food-conditioned black bears that damage her property (Hatcher, 1996). Many hunters hold that the public outcry against black bear hunting is a form of propaganda on the part of animal rights interest groups (Bowman, 1995; Ownby, 1995; Stewart, 1997). A letter to the newspaper expressing this opinion states “ ‘bleeding hearts’ are acting hysterical over the plight of the bear” (Stewart, 1995). The overriding attitude of hunters and long-term residents raised in the area is that people have the innate right to hunt wild animals and that the black bear in fact need to be hunted to control its population.

Alternatively, people with moralistic and humanistic wildlife values express a strong affection for animals and vigorously oppose an animal’s consumptive use (Kellert,

1994). They tend to express affection for individual animals such as large wildlife species with strong anthropomorphic associations (1994).

People expressing a moralistic/humanistic wildlife value are inclined to strongly oppose the hunting season in Gatlinburg. Several sources use the terms “the inhumane slaughter and murder of wonderful animal friends” to describe the harvest of black bears (Phone Log, 1997; Humane Educ. Net, 1998; Rosen, 1995; Walden, 1995; Quinn, 1995; Gordon, 1995; Peek, 1995). The opinion is that bear hunting results in the wanton destruction of a Tennessee treasure. They threaten to take their tourist dollar and stay away from Gatlinburg as long as the hunting season continues (Harris-Shoe, 1998; Sliter, 1995; Roberts, 1995; Silver, 1995; Lofton, 1995; Sexton, 1995; Boulet, 1995; DuBose, 1995; Bowman, 1995). Doris Kruk, a permanent resident, asserts, “the Bible does not say ‘sanctioned’ to slaughter an animal that you have dominion over.” (Kruk, Bears Report, 1997). These examples highlight the strong opposition towards black bear hunting of many residents and tourists to the Gatlinburg area. Many visitors that come to Gatlinburg have an anthropomorphic view of black bear. In Kellert’s studies of attitudes towards black bears, he found that many people in North America project human like qualities onto black bears (Kellert, 1994).

Ecologistic and naturalistic wildlife values are typically among college-educated and higher-income North Americans (Kellert, 1994). The primary focus of these values is on the outdoor recreational experience of seeing bears and on the knowledge the animal’s conservation and protection is strongly supported (1994). Ecologistic wildlife values consist of concern for the environment as a system and for the interrelationship between

animals and their natural habitats (1994). Naturalistic values have a primary emphasis on the direct experience of wildlife in an outdoor recreational setting (1994).

In Gatlinburg, the naturalistic and ecologicistic wildlife values expressed are not directly against hunting, but rather support the protection of the black bear population (Phone log, 1997). The sentiment is that waiting by a dumpster is not sport hunting (Clabo, 1995). The fear is that this type of behavior by man may disrupt the balance of the natural habitat (Phone log, 1997). Many people with these values are drawn to the area due to its historically rich wildlife population, especially the black bear, and they feel that hunting and poaching in the area threatens the health of the population (Olson, 1995).

Perceptions of a Particular Species

People in North America perceive the black bear as being phylogenetically similar to people, highly intelligent, and aesthetically appealing (Kellert, 1994). The black bear has a prominent symbolic value expressed in myth, fairy tale, story, and legend (1994). Further, attitudes towards the black bear are affected by perceived population status (1994). Many people opposed to the black bear hunting season in Gatlinburg fear the population is in danger of extinction (Skoloff, 1997; Fulford, 1997; Kruk, Bears report, 1997; Phone log, 1997). The perception is that the black bear population needs to be studied further before hunting proceeds in the area.

Since the black bear is a symbol synonymous with the area and the number one tourist attraction the killing of the bears in the presence of tourists has a direct, crucial

effect on the visitors' perceptions of the community, and potentially on their spending habits (Clabo, 1995; Turner, Petition., 1997). The black bear elimination through hunting could reduce the number of visitors to the area (Noyer, 1997). A statement in The Mountain Press that exemplifies the black bear as synonymous with the area reads “most people ask the best places to see bears and they buy postcards with black bears” (Noyer, 1997).

People-Animal Interactions

North Americans have a positive regard for the black bear despite the potential for human injury or property damage (Kellert, 1994). People/bear interactions are important in the formation of attitudes stemming from various land-use relationships (1994). Kellert's study found that in order to see black bears, people tolerate nuisance bears rather than support restrictions on garbage containment or feeding of bears on private lands that reduce nuisance behavior (1994).

In Gatlinburg, hunting has infringed upon private property rights thus, the residents and hunters are at odds (Kruk, Bears report, 1997; Dorwin, 1996). Over the past ten years, there has been tremendous growth in the Chalet Village/Ski Mountain area (Clabo, 1995). The sentiment is that hunting should not be permitted in this neighborhood due to public safety. Due to real concerns for hunters, landowners, and guests, the neighborhood association opted to use bear-proof garbage containers within the neighborhood in the hopes of alleviating hunting and property damage (Hatcher, Bear Proof., 1997; Nauman, 1996). However, the problem with the hunters has persisted

(Hatcher, Bear Proof.,1997; Nauman, 1996). Residents have accused the hunters of using unethical hunting practices stating, “the City Commission backs the hunters through a system of ‘good ole boy politics’” (Noyer, 1997). It has been reported that during the signing of a petition against hunting in the city, the hunters showed up with their guns to intimidate the people (Noyer, 1997). One individual is quoted in the The Mountain Press as saying, “ never saw an armed hunter, but see plenty of nuisance bears (Stewart, 1997).” This statement refers to the attitude that many of the black bear problems with hunting began as garbage problems where available food influence the bears behavior and inadvertently act to lure the black bear into the neighborhoods.

Knowledge and Understanding

Knowledge and understanding of the black bear population is an important influence on people’s attitudes towards animals (Kellert, 1994). An examination of people’s knowledge of black bears in the GSMNP reveals a moderate knowledge of the black bear population and the dynamics that affect their behavior (Kellert, 1994). One letter to the newspaper states that TWRA is a professional organization knowledgeable in the management of black bears in Tennessee and that the people of Gatlinburg should leave the management up to the professionals (Whaley, 1997). TWRA has given advice on how to handle nuisance black bears and the consequent hunting in the area (Webster, 1996). The solution is bear-proof garbage containment and stopping intentional bear feedings (1996).

Many people have written in support of bear-proof garbage containment policy and of prohibiting the intentional feeding of bears. In fact, 1,681 residents signed a petition requesting a bill to prohibit the intentional feeding of black bears (Webster, 1996; Anderson, 1997; Johnson, 1995; CHARC, 1997; Patterson, 1997). Some people believe no efforts have been made to secure garbage or educate the public about the negative effects of human foods for bears (Tracey, 1995). Opinions have been stated in letters and the newspaper that garbage containment is a smokescreen for the real issue of not wanting to prohibit hunting. In fact, one protester of hunting states “ how can anyone believe that feeding animals or having unsecured trash can create poachers” (Croats, 1995). Another protester of hunting believes that hunters are luring the black bear out of the park with honeybuns and stale bread (Kruk, Bears report, 1997). Another opinion is that renters feed the bears intentionally and unsecured garbage lures hungry bears into the area, altering their behavior over time (Alexander, 1995).

Gatlinburg tourism suffered from hunting due to a threat of public safety and fear for survival of the black bear (Phone Log, 1997; Humane Society, 1997; Stop Bear, 1997). Many people believe TWRA was not acting in the best interest of the black bear. This belief was based on perceptions that half the black bear population was killed in the 1997 October hunt, and that the 1997 December hunt would further damage the black bear population (Humane Society, 1997; In Defense of Animals, 1997; Great Bear Foundation, 1997; Turner, Petition, 1997). These are prominent beliefs despite wildlife management and biology data that support the theory of tremendous growth in the black bear population since the 1970's, which has resulted in the high black bear population of

the 1990s. Chapter I provides data on the current black bear population and supports evidence of a high black bear population.

Summary

Basic wildlife values contribute to the attitude people have toward the black bear. Many hunting supporters identify with dominionistic/utilitarian wildlife values. Their support of hunting in Gatlinburg is built around a sense of tradition and natural heritage. Many of these people believe hunting is good for black bear population control. Tourists and residents that are identified as having moralistic/humanistic wildlife values strongly oppose black bear hunting. They are against the inhumane slaughter of the black bear, which they see as a symbol to the area. Many of the sentiments of people with moralistic/humanistic views express that hunting is bad for tourism. People with ecologicistic/naturalistic values want to protect the black bear population. Conflicting values are further exacerbated through people's perceptions of the black bear. Concerned citizens question if the black bear population is too low to support hunting. Another concern is that hunting affects people's perceptions of the area placing a negative impact on tourism. Hunting has created concerns over property rights violations and public safety. Knowledge and understanding of the black bear varies throughout the community. Some people are afraid of hunting and of hunters. Others express that TWRA is not doing their job. While some residents campaign for a bear-proof garbage ordinance, other residents don't understand the need for such a garbage ordinance, but instead want to ban hunting. A common concern is that hunting is bad for the tourism industry. The conflict

persists because the hunters have a legal right to hunt and the bears are present in the neighborhood.

CHAPTER VII

INSTITUTIONAL-REGULATORY FORCES

Institutional-regulatory forces affect the development and implementation of bear policies in Gatlinburg, Tennessee. Kellert's (1994) wildlife policy model is used to describe the elements of these forces. In this analysis, one can see that legislative factors, pressure groups, bureaucratic relations, organizational structures, litigation, and constituency relations' interactions are complex. This interactive set of elements, though difficult to unravel simplistically, creates adverse situations that are left for the managers of wildlife and communities and policy-makers to resolve. This chapter will describe the primary institutional-regulatory forces that have impeded progress towards the elimination of nuisance bear activity, while at the same time promoted a volatile situation between hunters and nonhunters in the Gatlinburg area. However, it is important to note that litigation and constituency pressures have expedited the progress of bear policies that promote the ultimate survival of the black bear in Gatlinburg and surrounding areas.

Legal

Legal issues over hunting laws, the regulation of the feeding of black bears, and the struggle between state and municipal authorities have surfaced in Gatlinburg. The root of these legal concerns stems from conflicts over the legal hunting of black bears within the Gatlinburg City limits. Despite public outcry against hunting within the city limits, a person has the legal right to hunt within city limits in the state of Tennessee (Burson, 1990; Garland, 1993; Sharp, 1994). An important legal point is that a city

derives all of its authority from the state. It may not enact ordinances that are inconsistent with the laws of the state. Since, municipalities are under state regulation and only have authority that the legislature grants, they cannot seek to exercise such power even within their municipal boundaries unless the state delegates the power for municipalities to regulate hunting and fishing. Since the General Assembly has not delegated such authority to municipalities, they may not impose additional regulations regarding hunting (Burson, 1990). The Office of the Attorney General finds that the TWRC is authorized to regulate all hunting and fishing in Tennessee on state-owned and privately owned property (1990). The municipality does not have the authority to regulate hunting, trapping, or fishing within the corporate boundaries by license or permit (1990).

Bear season is determined by TWRC each spring and is set in July according to conclusions drawn from a review of the black bear survey data and carrying capacity (Scott, 2000). For the 1998-1999 season, black bear hunting was permitted in Sevier County from September 26 – October 2 at a limit of one bear per person per year (either sex is allowed) (TWRA, 1998). The second hunting season in Sevier County was December 3-16 at one bear per year per person (either sex is allowed) (1998). The limits on bear for any person hunting statewide or in Wildlife Management Association jurisdiction shall not exceed one bear per calendar year. Cubs or female bears with cubs at their side may not be taken at any time. A cub is defined as a bear weighing 75 pounds or less. All bears must be checked out at an official bear checking station designated by TWRA (TWRA, 1996). The reproductive organs must remain attached to each bear harvested until the bear has been officially checked out at an official bear checking

station (1996). In Sevier County, the checking station is located at Proffit's Gas and Grocery in Gatlinburg.

Hunting hours for black bear are one-half hour before sunrise to one-half hour after sunset (TWRA, 1998). Nocturnal hunting of black bears is illegal, and this law is strictly enforced. In fact, two men in Sevier County were arrested for hunting black bears at night (Turner, Two charged., 1997).

Although the city has an ordinance prohibiting the discharge of firearms within the city limits, state hunting laws override a city ordinance. Hunting on public lands requires that the hunter be at least 100 yards from private dwellings regardless of the dwelling being on private or public property. There are no laws that dictate hunting distance from dwellings when on private property. Most of the land on which hunting occurs in Sevier County is private (Dorwin, 1996).

Hunters are required to have written permission to hunt on private property. Also, the landowners should post signs requiring written permission to hunt (Associated Press, 1998). Hunting and trapping on private land is based on TCA 70-4-106 that states that written or verbal permission is required to hunt on private property, and if the private land has been properly posted by the owner, a hunter or trapper must carry the owner's written permission. If the hunter or trapper is found without that written permission, that hunter or trapper is subject to prosecution (TWRA, 1998). A dog on a hunt is not held to the same trespass regulations.

The TCA 44-8-408 prohibits dogs from running at large, but it specifically exempts "... a dog on a hunt or chase, or on the way to or from a hunt or chase..." The

owner of the dogs can only go on private property only if he has the permission of the property owner or of the person in charge of or who represents himself/herself to be in charge of the property (Garland, 1993). An unauthorized entry of the dog owner would amount to a trespass. This trespass could be a violation of TCA 70-4-106 (hunting without permission). If a person is involved in hunting on property where he/she does not have permission, the wildlife officer can only take action if he/she personally observes a person “hunting without permission on land that is properly posted (Garland, 1993).” This guideline is stated in TCA 70-4-106 (b). If a landowner observes hunting without permission on his/her property, it is his/her responsibility to make a citizen’s arrest. It is not the responsibility of the wildlife office to arrest on such charges.

TWRA maintains that no hunter or dog owner may be subject to local municipal restrictions if he is actively on a hunt. The state and TWRA have exclusive authority over hunting activity, and their mandates override local governing bodies. In the opinion of the Gatlinburg City Attorney, both of the city ordinances in question, firearms and unleashed dogs in the city limits, are valid and enforceable (Sharp, Dogs., 1994). However, it is likely that any charges brought against a dog owner or hunter would be dropped if statutes regarding the state’s exclusive regulatory authority were used in their defense (1994). Obviously, a property owner would reserve the right to press charges against any hunter who comes on their property if their land is posted for nontrespassing (1994).

The best local option to aid in the control of hunting within the city limits of Gatlinburg is a garbage ordinance. Gatlinburg officials cannot regulate hunting directly, but indirectly an ordinance requiring the use of bear-proof garbage containment can

alleviate the presence of black bears within the city limits, and therefore, lower hunting activity within the city. In 1999, Gatlinburg passed a bear-proof garbage ordinance, Number 2188, that requires the use of animal-resistant garbage containers in designated areas and at restaurants (Gatlinburg, 1999). If the containers do not meet the requirements of the ordinance, they must be contained within an enclosure that prevents access by animals. The ordinance takes effect June 1, 2000.

Stakeholders

The constituency relationships involved in the institutional-regulatory portion of Kellert's (1994) model are made up of government entities, interest organizations, and governmental structure. The constituencies' bear management objectives reflect state and local policy implementation criteria. Each organization has a responsibility to an agenda that is either mandated through law or policy. Some of the influential stakeholders are discussed in this section to highlight the different goals and policies that each constituent bases their criteria for decision making.

The National Park Service procedure for managing black bears is to manage visitors, concessionaires, and their employees in a manner that allows bears to live naturally while providing a safe environment for visitor use (GSMNP, 1997). The feeding of black bears within the GSMNP is strictly prohibited, and bear-proof garbage containment is prevalent throughout the park (1997). The GSMNP is the largest black bear reserve in the Southern Appalachians. Part of effective black bear management requires a yearly inventory and monitoring of the bear population (1997).

TWRA manages the black bear population of state and federally owned lands (Scott, 1990). Their objective is to maintain existing population levels and minimize habitat loss while providing an average annual harvest of 50 black bears by 4,000 to 5,000 bear hunters (Scott, 1990). This organization manages many bear reserves and sanctuaries within the state. The laws of the state govern TWRA, and the Tennessee Wildlife Resources Commission (Scott, 1999) makes annual management decisions. The General Counsel is the legal advisor to the TWRA. State and local hunter associations lobby for specific hunting considerations. In the case of the black bear, the hunter association wants to keep both hunting seasons open, but does not approve of unethical hunter behavior that has led to a negative image of hunters.

The City of Gatlinburg is the local municipal entity that thrives due to tourism. Its location at the gateway of the GSMNP contributes to the economy as a tourist destination creating other management factors such as garbage containment issues and property conflicts due to the presence of the black bear and hunting. It has no authority to manage the black bear population within its corporate limits, but its presence contributes to the conflict. The Sevier County Commission is the legislative authority of Sevier County. In 1989, the county commission adopted a resolution requesting that TWRA not relocate nuisance black bears outside of the county. The intent of this was to keep bears available for hunters and viewers.

The University of Tennessee Department of Wildlife, Forestry, and Fisheries has conducted ongoing studies of the black bear population in the southern appalachian region whose researchers are recognized nationally as experts in the field. Many of their

studies focus on the population and behavior of the black bear in the region. This academic organization has been a part of one of the longest ongoing studies of the black bear. Over the years, the techniques of data gathering have improved accuracy of population counts. This is the group of experts on black bears in the area.

The Chalet Village Homeowners Association manages the residential neighborhood adjacent to the park boundary. There are 1,681 units under this association's care. Ninety five percent of these units are overnight rentals. The association represents the owners who are obligated to abide by the covenants and by-laws of the homeowners association. On average, from mid May to mid September there were 45,000 to 55,000 people in the properties (Russell, 1998). The association faced with litter, property damage, and threats to public safety due to nuisance bear behavior adopted their own policy of mandating the use of bear-proof garbage containers. Also, the association requested that the owners, on a voluntary basis, distribute educational materials to the rental units on the feeding of bears. The lack of cooperation on the part of the city heightened the association's level of frustration in solving this problem.

The Problem Bear Task Force formed to solve the growing number of negative interactions between black bears and people in the Gatlinburg area. The first members consisted of representatives from UT, the NPS, TWRA, and Gatlinburg (Ricks, 1989). In 1997, The Ad Hoc Bear Issues Committee convened at the request of the mayor of Gatlinburg to create solutions to the black bear issues in Gatlinburg (Ogle, 1998). The first representatives were from the city of Gatlinburg, TWRA, the Chalet Village Homeowners Association, LeConte Properties, and the NPS. The group formed mainly as

a reaction to the public outcry against hunting in Gatlinburg in 1997. Both of these groups are dedicated to forming solutions to the conflicts. Both of these groups at different times during the conflict developed the same solutions to the problem. The difference between the two groups is the addition of homeowner's association representatives at the latter committee.

The Humane Society and other animal-rights groups publicly voiced their opinions against black bear hunting. The organization, which represents the voice of many citizens and animal rights activists, opposed the hunting season due to a perceived negative population impact and threat to public safety (Hatcher, No.,1997).

Summary

The role of the Chalet Village Homeowner's Association had a major impact on facilitating the city-wide adoption of a garbage ordinance because the association was the first citizen based organization to take action and implement their own neighborhood wide bear-proof garbage control without the help of the city. The two task forces formed differently, but offered the same solutions and reissued the same message to the city. The groups involved represent the federal, state, county, city, and residents. The groups collectively had the same solutions, but the adoption process was slow due to a disconnection on the part of the city. The confusion over hunting jurisdiction and authority added to the slow adoption process of a garbage ordinance on the part of the city.

CHAPTER VIII

CHRONOLOGY OF INTERACTIONS

The institutional-regulatory forces after twenty years have finally come together and may begin to solve the problem. Policy is evolving. This chapter uses a time line to document the sequence of the factors described in the previous chapters to illustrate an interactive and collaborative influence on the decision making process.

1976

The GSMNP begins to separate the garbage from the bears by adopting a park wide policy of bear-proof garbage containment along with the prohibition of the feeding of bears. The park started this policy due to a rise in visitors to the park along with a rise in nuisance and panhandler black bear activity.

1989

A meeting concerning problem bears within the city of Gatlinburg and Sevier County occurred in 1989 between Harry Montgomery, the Chief of Gatlinburg Police; Riley King, the Sevier County Commissioner; and J.S. King, the President of the Sevier County Hunters Club (Montgomery, 1989). During this meeting, the group was informed that the County Commission voted against TWRA moving problem bears outside the county. In light of the County Commission's decision, the group opinion for dealing with problem bears was to move them within the county, to chase the bears with dogs away from human habitats, or to kill the bears (1989). No final decision was reached.

The first meeting of the Problem Bear Task Force occurred on June 19 (Ricks, 1989). The task force members at this meeting were Dr. Mike Pelton (UT), Bill Stiver (UT), Kim Delozier (NPS), Karen Ballentine (NPS), Harry Montgomery (GPD), Randall Brackins (GPD), Allen Ricks (TWRA), Doug Scott (TWRA), Tony Proffitt (TWRA), Dick Conley (TWRA) (Ricks, 1989). The main topic of discussion was the negative interaction between black bears and people in Gatlinburg, Pigeon Forge, and the Sevier County area (1989). The task force determined that the factors hindering solutions to the problem were (1989):

1. Inadequate garbage control
2. A mixture of interest groups in the area
3. The Sevier County Commission resolution asking TWRA not to relocate bears outside the county.
4. The National Park Service does not want the problem bears returned to the park.
5. The lack of manpower to adequately deal with the situation.

The task force realized that the problems will increase if not controlled as Sevier County's populations of bears and of humans grows and expands (1989). The strategies that were selected to deal with the problem were (1989):

1. Better garbage control
2. Good public information
3. Educating the Sevier County Commission on better control of problem bears
4. Manpower in the form of a temporary position funded by the NPS, TWRA, Gatlinburg, and Sevier County.

5. Aversive conditioning of problem bears.

A memorandum was sent to Cindy Cameron, the acting city manager, stating the topics of discussion at the Problem Bear Task Force Meeting. The suggestions made to solve the problem were outlined in the memorandum with the number one suggestion being to provide bear-proof garbage cans (Montgomery, 1989).

During this time, TWRA began questioning the General Counsel about TWRA's potential liability in connection with problem bears. The response to Allen Ricks, TWRA, from L. Brooks Garland, General Counsel stated that there is a risk of liability when dealing with the control of state-owned problem bears (Garland, 1989). General Counsel advised TWRA that in order to reduce liability in this type of situation, the agency should set up a written policy with specific procedures for dealing with problem bears (1989). The procedures should be formulated from agency expertise and knowledge (1989). The policy should be kept updated and followed consistently in order to reduce the risk of liability (1989). Also, during this time, there is documentation of an inquiry from Larry Marcum, the Chief of Wildlife Management for TWRA, to Greg Wathen, the Deer Project Coordinator for TWRA about legislation to prohibit the feeding of bears. The response was that this law would be difficult to enforce (Wathen, 1989).

1990

TWRA implemented an October bear hunting season to offset the movement of black bears out of bear reserves into public lands in search of food (Scott, 1990). The city of Gatlinburg drafted an ordinance, number 2016, to amend the Gatlinburg Municipal

Code to prohibit hunting and trapping within the city limits. The ordinance passed on the first reading, but was replaced by ordinance number 2017 that prohibited trapping within the city limits of Gatlinburg. Ordinance number 2017 passed on the second reading on April 3, 1990 (Ordinance 2017). It is assumed that the change in terminology between the two ordinances, 2016 and 2017, is that local government has no jurisdiction over hunting based on Tennessee state law referenced in the preceding legal section within this chapter.

1992

TWRA recommended to the city of Gatlinburg adopting the recommendations of the Solid Waste Management Division of the University of Tennessee to reduce the incidence of bear visits and feedings within the city limits (Resolution from TWRA Wildlife Commission, 1992). This resolution came at a time when there was a mast crop failure in the Great Smoky Mountains National Park (Pelton, 1997). Ninety problem bears were captured and relocated. Many were from the Gatlinburg and Great Smoky Mountains National Park areas (1997). As noted earlier, Mike Pelton, a professor of wildlife science at the University of Tennessee, stated that this particular mast crop failure initiated breeding synchrony among the female black bears (1997). Thus, all of the female black bear population came into heat at once rather than the usual 50% of the population being fertile at one time creating a larger population of cubs than normal the following year (1997).

1995

In a letter to a concerned tourist from Ohio over the poaching of a bear in the Gatlinburg area, Mayor Chuck Bradley stated that Gatlinburg is a member of an active task force committed to solving and finding solutions to bear issues (Bradley, 1995). Allen Ricks, the task force chairman and TWRA Representative, sent a letter to Cindy Cameron-Ogle, the Gatlinburg city manager, defining the problem bear issues that the task force was discussing (Ricks, 1995). The letter informed Cindy Cameron-Ogle that the task force had developed:

- A brochure about problem bears and made it available in the Sevier County area
- Printed a poster discouraging the feeding of black bears
- Created a school for personnel on how to handle problem bears.

The letter also discussed the problem of bears coming into the city of Gatlinburg to find an easy food source and stated that the solution of eliminating the food source would cause bears to go out into other areas. In addition, the letter provided two options for eliminating the food source—the use of bear-proof dumpsters and the discouragement of the intentional feeding of bears (1995). If the bears are not attracted to the city, hunters in developed areas will be daunted (1995).

In August of 1995, Cindy Cameron-Ogle sent a letter to a Knoxville resident who urged the City to adopt an ordinance prohibiting the feeding of bears. In the letter, Ms. Ogle stated that the City and TWRA were discussing whether Gatlinburg was authorized to regulate the feeding of black bears (Ogle, 1995). Based on previous advice by TWRA,

the City was under the impression that local government has no control over bear regulation within the City Limits (1995).

1996

In October of 1996, residents and hunters clashed over rights in the Chalet Village residential area of Gatlinburg (Dorwin, 1996). The residents were opposed to the hunters in the area and believed they were violating a city ordinance that prohibits the discharge of firearms within city limits (1996). However, hunters do have the legal right to hunt within city limits as discussed earlier in this chapter. Problems occur because hunting is mainly on private property, which makes it difficult for TWRA to regulate (1996). The city has no regulatory jurisdiction over hunting, but it can regulate garbage. Therefore, the hunters are in the city to find bears that are attracted to the city due to the available food source of accessible garbage and intentional feeding by tourists and local residents (1996).

Human habituated bears like the ones in Gatlinburg have caused human injury and created litigation problems for federal and state departments in other parts of the nation. In Arizona, a food-conditioned bear mauled a teenage girl while she was on a camping trip in a national forest (Peckham, 1996). The mauled girl's family sought fifteen million dollars in damages and filed a claim against the state and federal governments (1996). The filed claims were a prerequisite to a lawsuit that alleged negligence on the part of the U.S. Forest Service, The State Game and Fish Department, and the University of Arizona agricultural co-op, which oversees the Southern Arizona 4-

H program (1996). The claim states that the Game and Fish Department were negligent because it failed to do anything about thirty problem black bear encounters between bears and humans in the Santa Catalina Mountains (1996). The U.S. Forest Service was said to be negligent for failure to cite people for feeding black bears in the area, and for inadequate public education programs on black bear behavior in the area (1996).

1997

Another incident of litigation involving black bears occurred in Arizona. This litigation set precedence for how courts deal with wild animals in other states. In February of 1997, a woman in Arizona was charged and convicted of one count of misdemeanor criminal nuisance. The ruling was based on the fact that she endangered the safety of other humans by feeding black bears (Innes, 1997).

In 1997, a mast crop failure occurred followed by the highest harvest yield of black bears on record in areas surrounding the Great Smoky Mountains National Park and black bear habitat in the Southern Appalachians. Approximately 244 black bears were killed in a two-week October hunting season from Cocke, Sevier, and Blount Counties (Pelton, 1997). This situation of conflicts surrounding hunting, people, and bears raised the question of who is responsible for controlling nuisance (Skoloff, Who's..., 1997). Ron Sharp, the Gatlinburg city attorney, stated that Gatlinburg is unsure of its jurisdiction in this situation. The city may be stepping over regulatory boundaries if it passes an ordinance that prohibits the feeding of black bears and mandates bear-proof garbage containers (1997). Kim Delozier of the National Park Service believes the black

bear problem in Gatlinburg is the city's responsibility. He states that the City lacks a black bear management policy because black bears are good for business (1997). In reaction to the controversy, Mayor Fred McMahon requested that a committee be created to formulate solutions to the hunting problem in Gatlinburg (Hatcher, Vice., 1997).

In November, the Ad Hoc Bear Issues Committee was formed (Ogle, 1998). The representatives at the first meeting of the Committee were Mayor George Hawkins; Ron Sharp, the City Attorney; Ron Greene, the public works director; Harry Montgomery, the Gatlinburg police chief; Tony Proffitt, TWRA; Ken Webster, the Chalet Village Homeowners Association; Chuck Hines, the LeConte Properties; and Kim Delozier, GSMNP. The committee came to a consensus and agreed the city should attempt to solve the bear problems in two separate ways: controlling bear feeding and changing hunting laws (Hatcher, Panel., 1997; Hatcher, Sound., 1997). In order to accomplish their goals, the committee decided to request that TWRA change the October hunting season to another time; to petition state legislature to ban hunting within city limits; to adopt an ordinance outlawing feeding of wild animals; and to mandate the use of bear-proof trash containers throughout the city (1997).

At the same time, many organizations and people began to speak out publicly against black bear hunting in the area. A petition was circulated urging the cancellation of the second hunting season in December. The Humane Society and Vice Mayor George Hawkins supported this petition (Hatcher, Vice., 1997; Vaughn, 1997; Fulford, Petition., 1997; Turner, Petitions., 1997). The petition raised the following concerns: the black bear population, the negative impact on the tourism industry and economy, public safety,

and property rights (Kruk, Where...,1997; Vaughn, 1997; Hatcher, Vice...,1997; Hodge, It's..., 1997). The hunters spoke out in their defense (Tindell, 1997).

Bob Ripley, TWRA Region IV Manager, and Gary Myers, TWRA executive director stated that “ if you close the hunting, then we can’t deal with the bear problems we have in the area, and the bear population needs to be kept under control (Hodge, Bear..., 1997).” Mike Pelton in a letter to J. Warren Webb confirmed the black bear population has been increasing since the 1970s (Pelton, 1997). In the Southern Appalachians, there are a total of six million acres of black bear habitat with one million acres of this habitat reserved for no hunting (1997). The resiliency of the black bear population is not in question. The current conflicts in Gatlinburg are not a bear problem, but a people problem (1997). Managing people such as hunters and landowners is a challenge, and as people move in, bears or wildlife must adapt or leave (1997).

1998

1998 was the year of garbage containment controversy. Citizens began publicly calling for Gatlinburg to enact a bear-proof garbage ordinance. Their position was it should be mandatory that businesses contain garbage in bear-proof containers, but that the city should help pay for containers in the residential areas (Kruk, 1998; Gatlinburg Can, 1998). Gatlinburg began researching the issues surrounding the requirement of bear-proof garbage containers within the city (Hatcher, March 1998). Ron Greene, the public works director, stated that the use of special containers would slow the garbage collection process, therefore, costing the city more money (Hatcher, July1998). Citizen input was

that the bear-proof garbage containment should be a city responsibility and that the city should take a leadership role in this issue (Hatcher, March 1998). The fact that the bear-proof garbage containers would take more time to empty was not a reason to overlook the city's responsibility to adopt a bear-proof garbage ordinance (1998). The city found that it would cost \$250,000 to buy containers for everyone (Hatcher, July, 1998).

Karen Wade, NPS, wrote a letter to Bob Ripley, TWRA, outlining the four-step answer to Gatlinburg's bear problem that Ad Hoc Bear Issues Committee developed (Wade, 1998). The steps were to secure garbage at least in the boundary section adjacent to the Park, to create legislation stopping the intentional feeding of bears, to eliminate the habituated black bear population in Gatlinburg, and to create a full time problem bear management position (1998). Ron Sharp, the city attorney, stated that the city would have a difficult time outlawing the feeding of bears (Hatcher, July 1998). Cindy Ogle sent a memorandum to the mayor and city commission that included a review of the Ad Hoc Bear Issues Committee and proposed an ordinance to require animal resistant cans and enclosures for all restaurants and two specific residential zones (Ogle, 1998).

In October, the city officials decided not to mandate the use of bear-proof garbage containers, but urged residents to voluntarily buy such containers (Turner, Oct. 1998). In fact in December, the city commission approved a voluntary garbage ordinance (Lancaster, Gatlinburg..., 1998). Mayor George Hawkins was quoted as saying " we've got so many laws. Anytime we can keep from making a new law, I think that's what the public wants (1998). The city pledged to go to a mandatory garbage ordinance if the voluntary program did not work (1998).

1999

The voluntary garbage program did not have the response necessary to control the situation, so the city passed a mandatory bear-proof garbage ordinance, Number 2188, for all restaurants and some residential areas bordering the park in 1999 that became effective in June of 2000.

2000

A woman was fatally mauled in the GSMNP while on a day hike. The incident is the first fatal black bear attack in the Southeast (Jacobs, 2000). Wildlife experts are perplexed by this abnormal behavior (Simmons, 00; Jacobs, 2000). Kim Delozier, NPS, Joe Clark, U.S. Geological Survey, and Nancy Gray, NPS, report the black bear population estimates to be 1,800 in the GSMNP (Jacobs, 2000; Simmons, 2000). This is the highest concentration of black bear in the southeast (Simmons, 2000).

After the mauling, the Gatlinburg Gateway Foundation proposed legislation to prevent the feeding of black bears in Tennessee (Scott, 2000). TWRA met with this group to discuss the legislation and their support for prohibiting the feeding of black bears in particular areas of Tennessee (2000). The only way to prohibit the feeding of bears in Tennessee is through the state legislature with a private act, or through the Wildlife Commission passing a proclamation to prohibit the feeding of black bears (Brooks, 2000). In August, state legislation passed that prohibits the feeding of black bears in Gatlinburg (Associated Press, 2000).

CHAPTER IX

CONCLUSION

Hunting laws in the State of Tennessee and the fact that the state does not prohibit the feeding of black bears contributed to the final decision by the Gatlinburg City Council to adopt a local bear-proof garbage ordinance. The events that led up to this decision are discussed in the Chapter Chronology of Interactions, which describes events that occurred from 1976 to the present date of 2000. These events are a series of complex interactions between the legislative process, pressure groups, bureaucratic relations, organizational structures, constituency relations, and litigation. The factor of litigation appears to be a compelling motivational force for action on the parts of the Tennessee Wildlife Resources Agency and the Great Smoky Mountains National Park. Eventually the city of Gatlinburg, motivated by economics and liability issues, adopted a mandatory bear-proof garbage ordinance.

Kellert's wildlife policy model (1994) is relevant in understanding the wildlife decision-making regarding the nuisance bear problem in Gatlinburg. The model reveals the conflicting interests of and the pressures placed on the decision-makers. The analysis of the model displays complex and subtle interaction of the variables. The ebb and flow of the forces are shown on the time line in Chapter VIII. Each force has a key influence at different times in the decision making process. The biophysical force's key influence is the growth of the black bear population along with two years of a mast crop failure that sent the black bears into the city searching for food. The social-structural key influence is

the large rental population that encroaches onto the black bear habitat in a city whose policies cater to a tourist population without regard for the wilderness adjacent to its boundaries. The valuational force's key influence is the change of perceptions towards the black bear when hunting became visible in the city limits. The key influences of the institutional-regulatory force are: the hunting laws; the state law that permits bear feeding; the solutions of the federal, state, and citizen organizations on solving the conflict; and the slow reaction to the immediate black bear situation on the part of the city until the economy was threatened.

Literature, success stories, and knowledge are available on how to control and deter nuisance bear behavior. Task forces composed of wildlife managers and experts suggest proper garbage disposal, education, and prohibiting the intentional feeding of bears as solutions to control nuisance bears and resulting conflicts. Action toward controlling garbage disposal and bear feeding was not immediately taken by the local legislative authorities in Sevier County and Gatlinburg. Pressures to take no action towards garbage control stem from two primary forces many of the locals in the area perceive black bear hunting as a tradition of their mountain heritage; and the black bear's visibility has a positive impact on tourism. Locals and tourists both want the black bear to be visible in the area.

TWRA, as part of its management policy, opted for an October hunting season to control the overflow population of black bears from the park. The park black bear population continues to grow and the excess bears move out toward adjacent human development. When black bear harvesting became visible in the city limits, Gatlinburg

investigated their local options to prohibit hunting within the city limits. They discovered that they have no jurisdiction over wildlife, which includes hunting.

The city wanted the bears in the area to expand the tourism economic base, so they did nothing. Gatlinburg was placed under pressure to deal with the black bear situation due to the large propagation of the bear population, the simultaneous mast crop failure, the October hunting season, the state hunting laws, and the negative publicity with tourists. The situation had to become a people conflict and a high liability risk before the city adopted ordinances to control the disposal of garbage. The public was not concerned with the feeding of bears or improper garbage disposal until hunting and exposure to bear killings became visible. Ultimately, the city was placed under economic pressure to do something.

In 1989, the institutional-regulatory force in the form of a task force determined that nuisance black bear behavior needed immediate action, because the situation would only get worse. At this time, solutions to the situation were in place. The lack of action on the part of the city compelled the TWRA to open an October hunting season in 1990. This hunting season was the initial force that in the end put the most pressure on the city to adopt a garbage ordinance. As time moves forward, the biophysical force in the form of a mast crop failure of 1992 sent bears into the city searching for food. Hunting was visible at this time in the city limits, but there was no large public outcry. In 1996, a clash of values is expressed over hunting within the city limits. The year of 1997 is the time of the series of interactions that put the most pressure on the city. The mast crop failure of this year along with a large number of controversial hunting incidences within the city

limits created the strongest valuational force of public outrage against hunting of the black bear. Many tourists against black bear hunting threatened not to return to Gatlinburg until the situation was resolved. The city was still slow to react and began to discuss the possibility of a bear-proof garbage ordinance. The one action of the city was to direct another task force to assimilate solutions. The committee determined that a bear-proof garbage ordinance was needed. After this year, citizens became involved in publicly requesting that the city adopt a garbage ordinance. This persisted until the final action of adoption of a city ordinance requiring bear-proof garbage containment. At this point, a cohesiveness of the forces is seen.

The dynamics and complexities of this situation are a microcosm of how people react to wildlife. These reactions show that a little knowledge is a dangerous thing. The hunters, the visitors, the locals, the property owners, and the city all took actions based on their one view and accompanying knowledge of the situation. Even the wildlife managers made suggestions based solely around a wildlife agenda. The human component of the situation and the varying ideas of wildlife were not addressed in a comprehensive manner. Future decision making in potentially dangerous wildlife situations must begin with an unveiling of the perceptions and misperceptions of involved parties and then proceed with investigating to discover the best solution for the city's economy, the psychological health of the people involved, and the good of the black bear population. In this situation, catering to individuals' desire to see the black bear within the city backfired and became a potential detriment to the economy. As a community, the

responsibility lies in educating visitors about the area and imposing restrictions best for the public's long-term welfare.

The facts are:

- The city of Gatlinburg, business owners, residents, and tourists have encouraged the habituation of bears by feeding bears human foods and not requiring bear proof containers.
- The communities adjacent to black bear reserves need bear-proof garbage ordinances.
- The city of Gatlinburg, business owners, residents, and tourists need to be educated on bear management and why garbage kills bears.
- The current hunting laws in the state of Tennessee need to be changed.
- The city of Gatlinburg did not enact a bear-proof garbage ordinance until 1999, because black bears are good for the economy.

In this thesis, Kellert's model is applied as a diagnostic tool to understand the process leading to public policy. In retrospect, this model can also provide guidance to planners in the formulation of public policy that is more likely to be accepted by the stakeholders and therefore, much more effective. In so doing, the planner can act as an influential coordinator in formulating policy and physical development at the community level.

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